

# Streamflow and Groundwater Conditions in Rhode Island November 2022

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Table 2, Rhode Island Drought Indices and Phases

Drought Phase	Palmer Drought Index +	Crop Moisture Index	Precipitation +	Ground Water** +	Stream flow +	Reservoirs**
<b>Normal</b>	-1.0 to -1.99	0.0 to -1.0	Slightly Dry	1 month below normal 1 month below normal	2 consecutive months below normal	Reservoir levels at or near normal for the time of year
<b>Advisory</b>	-2.0 to -2.99	-1.0 to -1.9 Abnormally Dry	2 month cumulative below 65% of normal	At least 2 out of 3 months below normal	3 consecutive months below normal	Small index Reservoirs below normal
<b>Watch</b>	-3.0 to -3.99	-2.0 to -2.9 Excessively Dry	1 of the following criteria met: 3 month cum. <65% or 6 month cum. <70% or 12 month cum. <70%	4-5 consecutive months below normal	At least 4 out of 5 consecutive months below normal	Medium index Reservoirs below normal
<b>Warning</b>	-4.0 and below	> -2.9 Severely Dry	2 out of 3 of the above criteria met: 3 month cum. <65% and 6 month cum. <65% or 6 month cum. <65% and 12 month cum. <65% or 3 month cum. <65% and 12 month cum. <65%	6-7 consecutive months below normal observation wells recording monthly record lows	At least 6 out of 7 consecutive months below normal	Large index reservoirs below normal
<b>Emergency</b>	-4.0 and below	> -2.9 Severely dry	Same criteria as Warning and Previous month was Warning or Emergency	>7 months below normal Observation wells recording monthly record lows	>7 months below normal	Continuation of previous month's conditions

+ Major Hydrologic Indicators.

\*\* Local triggers from the water system supply management plans will also be considered in a assessing drought phases on a regional basis. The WRB staff will review local plans and work with suppliers to coordinate regarding drought phases and to collect, review and report surface reservoir and ground water data.

"Normal" is defined as the statistical average of the data for the period of record. Percentages for precipitation are relative to normal.

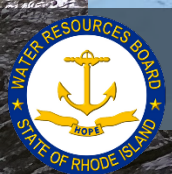
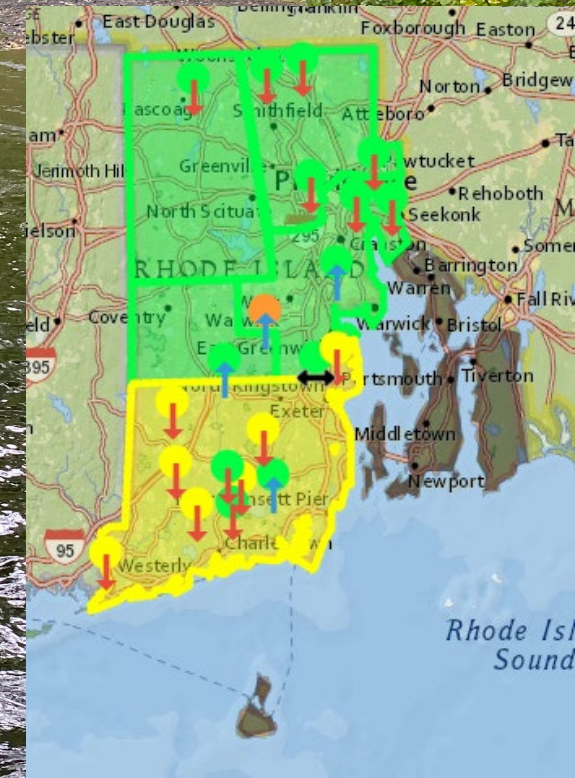
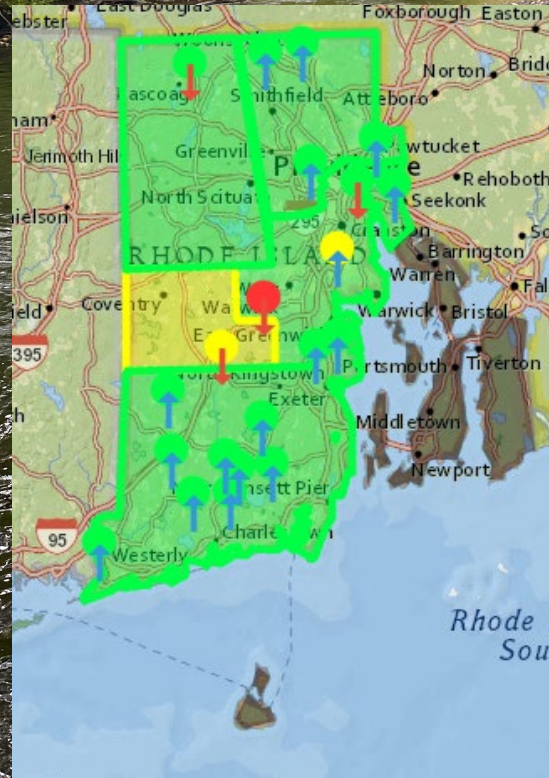
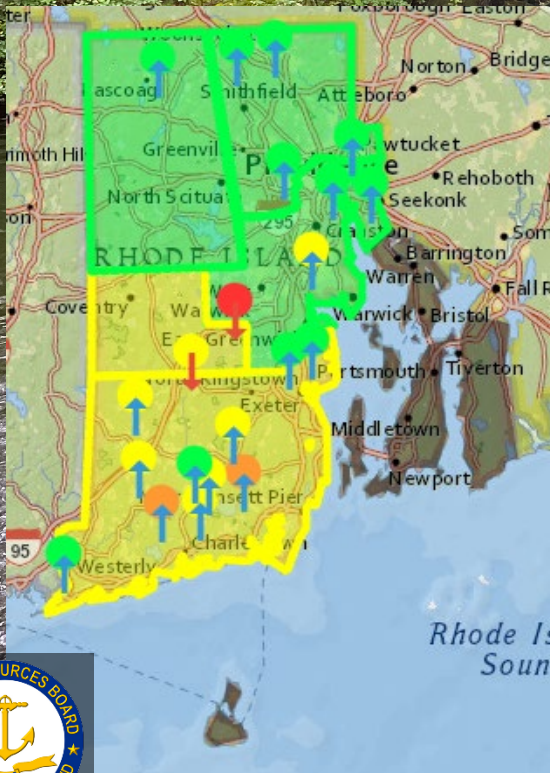


# Average Monthly Streamflow Conditions September - November

September

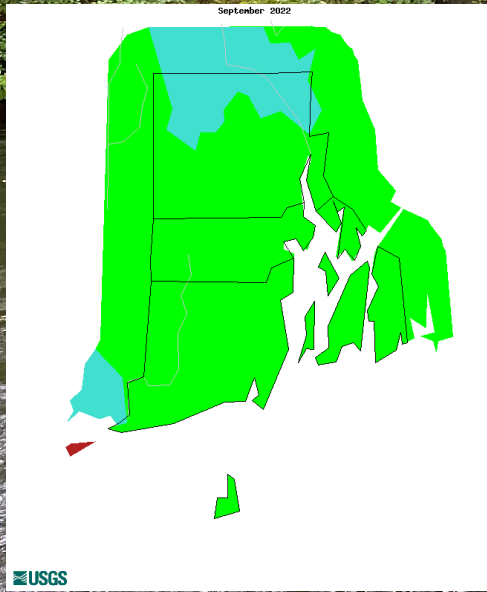
October

November



# Average Monthly Streamflow Conditions September - November

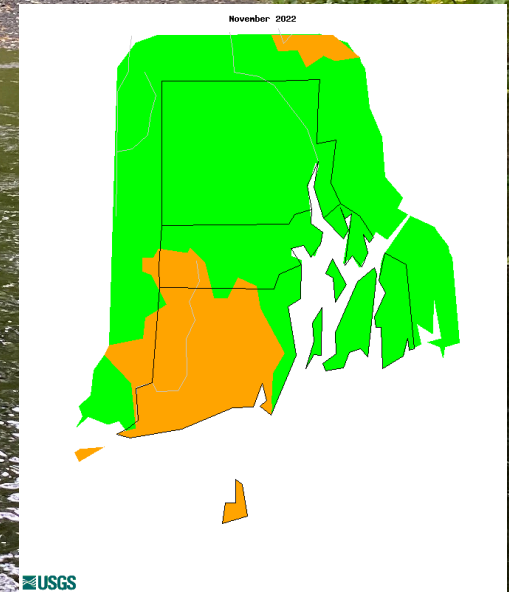
September



October



November



Explanation - Percentile classes						
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	

# Average Monthly Streamflow Conditions March - November

Region & Number of Gages	Q 3/2022	Q 4/2022	Q 5/2022	Q 6/2022	Q 7/2022	Q 8/2022	Q 9/2022	Q 10/2022	Q 11/2022
Northwest (1)	66	36	3	21	19	2	81	67	38
Northeast (4)	59	38	11	9	9	3	76	82	54
Central West (1)	25	40	10	28	23	49	43	26	41
Central East (4)	56	42	6	11	19	14	46	49	49
Eastern (0)	No Gages-----								
Southern (11)	57	31	17	30	14	10	36	54	34
New Shoreham (0)	No Gages-----								
	3/2022	4/2022	5/2022	6/2022	7/2022	8/2022	9/2022	10/2022	11/2022
statewide Q	55	35	13	23	16	11	48	58	41

**\*Pawcatuck at Wood River Junction, August=2%,  
September=22%, October=60%, November=27%**

**Streamflow = Normal (Two consecutive months of normal or below normal)**

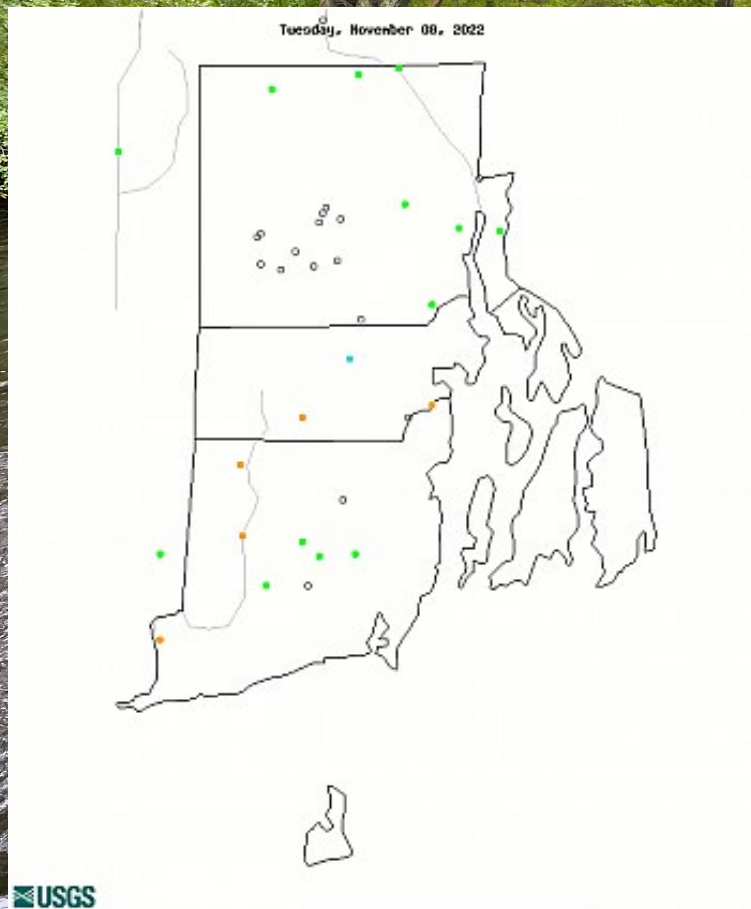


# Average Monthly Streamflow Conditions November – Southern Region

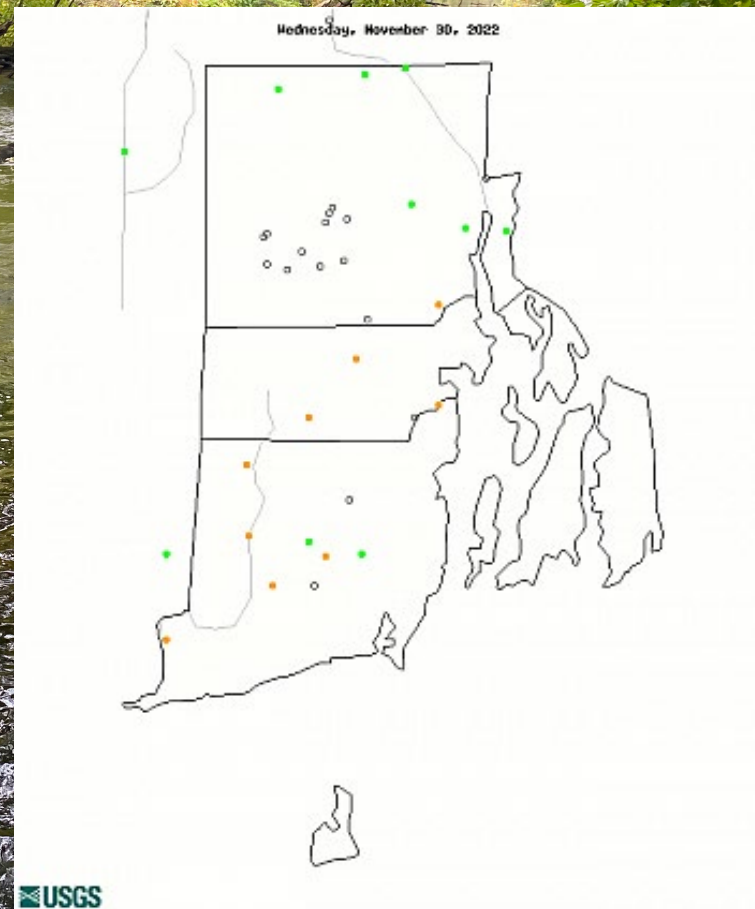
Station Number	Station Name	Drainage Area (mi <sup>2</sup> )	Percent	Change From Previous Month
01116905	HUNT R 250 FT DS.FRY BRK AT FRENCHTOWN, RI	16	47.06	0
01117000	HUNT RIVER NEAR EAST GREENWICH, RI	22.9	36.9	-20.24
01117350	CHIPUXET RIVER AT WEST KINGSTON, RI	9.59	30.19	-9.43
01117370	QUEEN R AT LIBERTY RD AT LIBERTY RI	19.6	26.92	-19.23
01117420	USQUEPAUG RIVER NEAR USQUEPAUG, RI	36.1	25.49	-23.53
01117430	PAWCATUCK RIVER AT KENYON, RI	72.7	36.36	-18.19
01117468	BEAVER RIVER NEAR USQUEPAUG, RI	8.87	44.9	-16.32
01117500	PAWCATUCK RIVER AT WOOD RIVER JUNCTION, RI	100	26.51	-33.73
01117800	WOOD RIVER NEAR ARCADIA, RI	35.2	25.42	-32.21
01118000	WOOD RIVER AT HOPE VALLEY, RI	72.4	28.92	-31.32
01118500	PAWCATUCK RIVER AT WESTERLY, RI	295	26.51	-27.71

# 7 - Day Maps

November 08, 2022

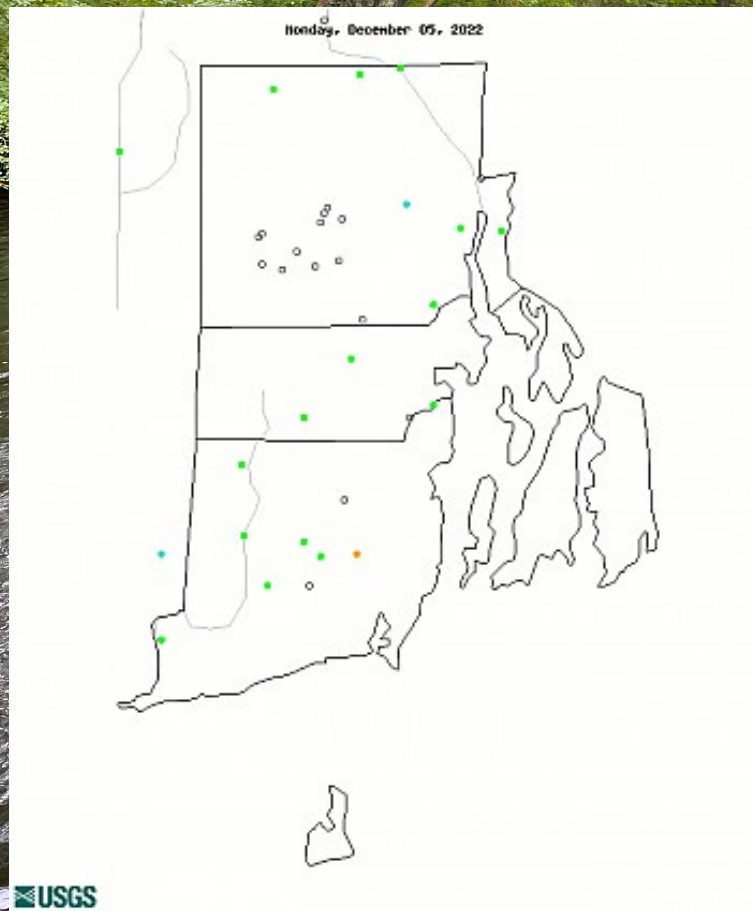


November 30, 2022

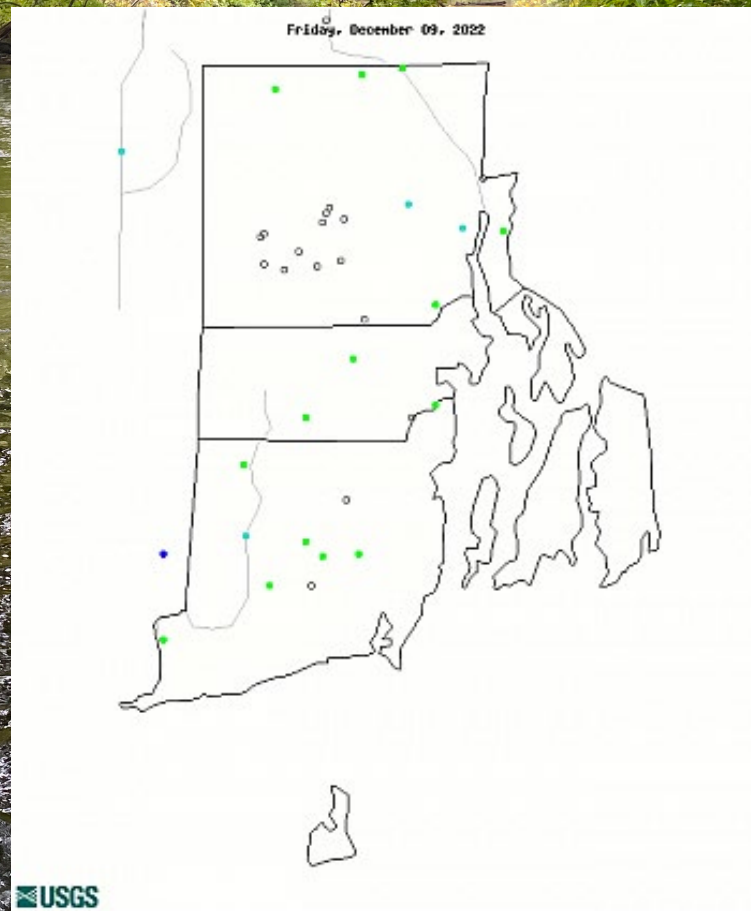


# 7 - Day Maps

December 05, 2022

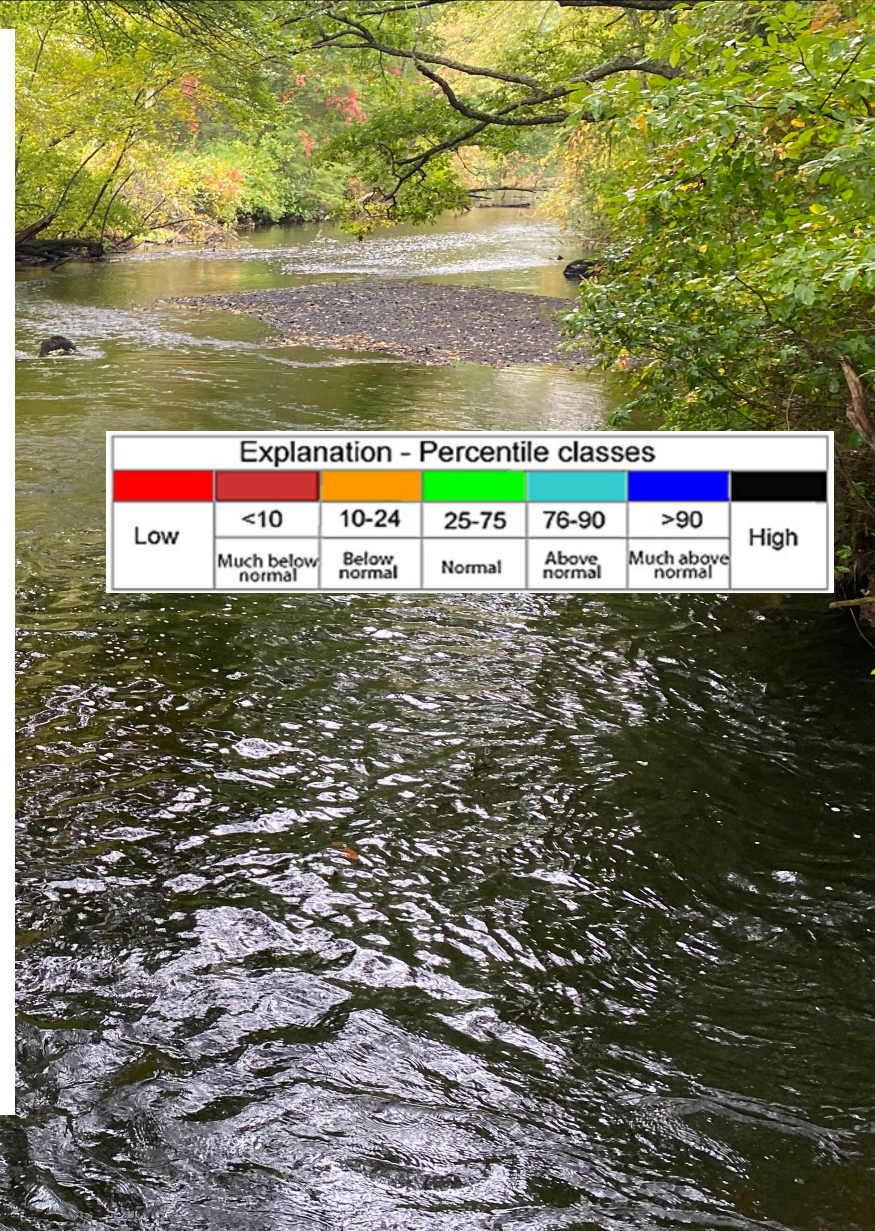
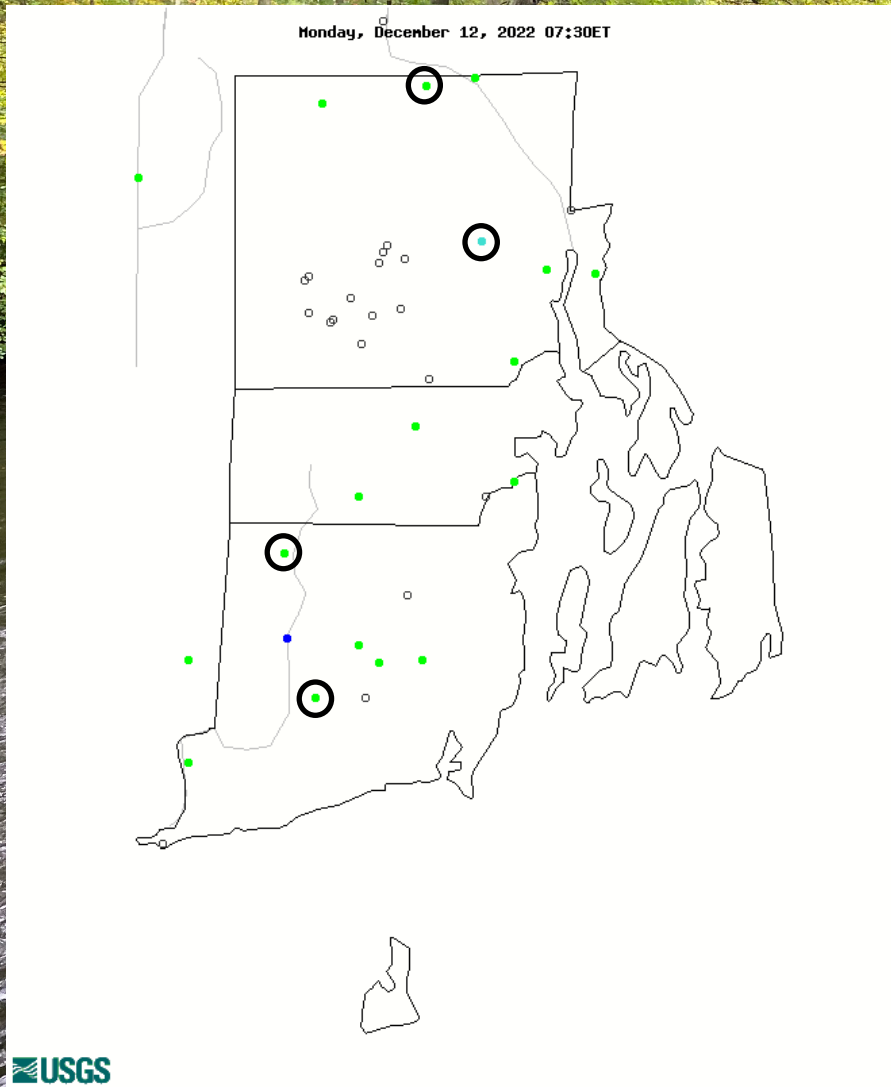


December 09, 2022



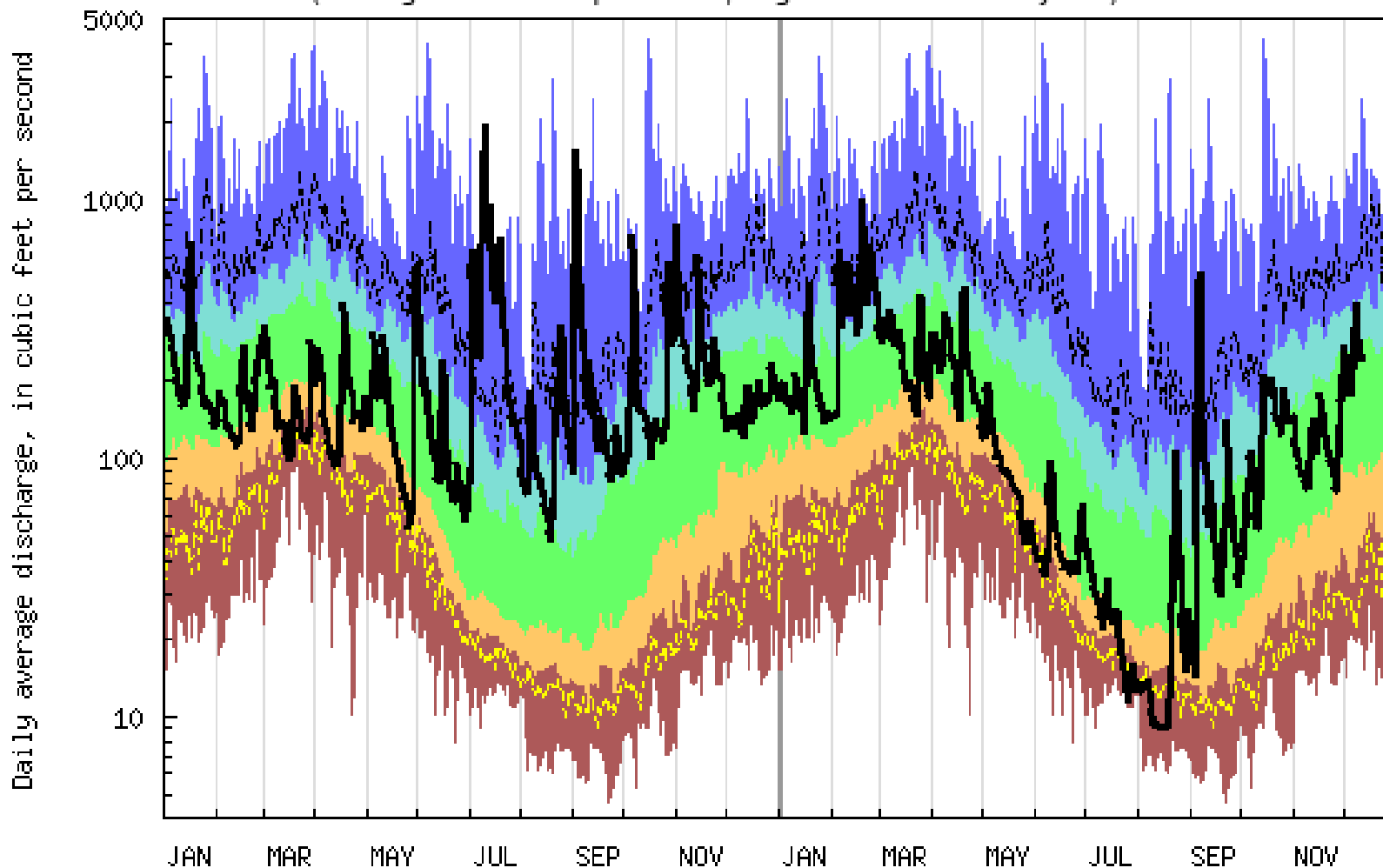


# Current Streamflow Conditions – December 12, 2022



Explanation - Percentile classes						
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	

USGS 01111500 BRANCH RIVER AT FORESTDALE, RI  
 (Drainage area: 91.2 square miles, length of record: 82 - 83 years)



**USGS WaterWatch**

2021

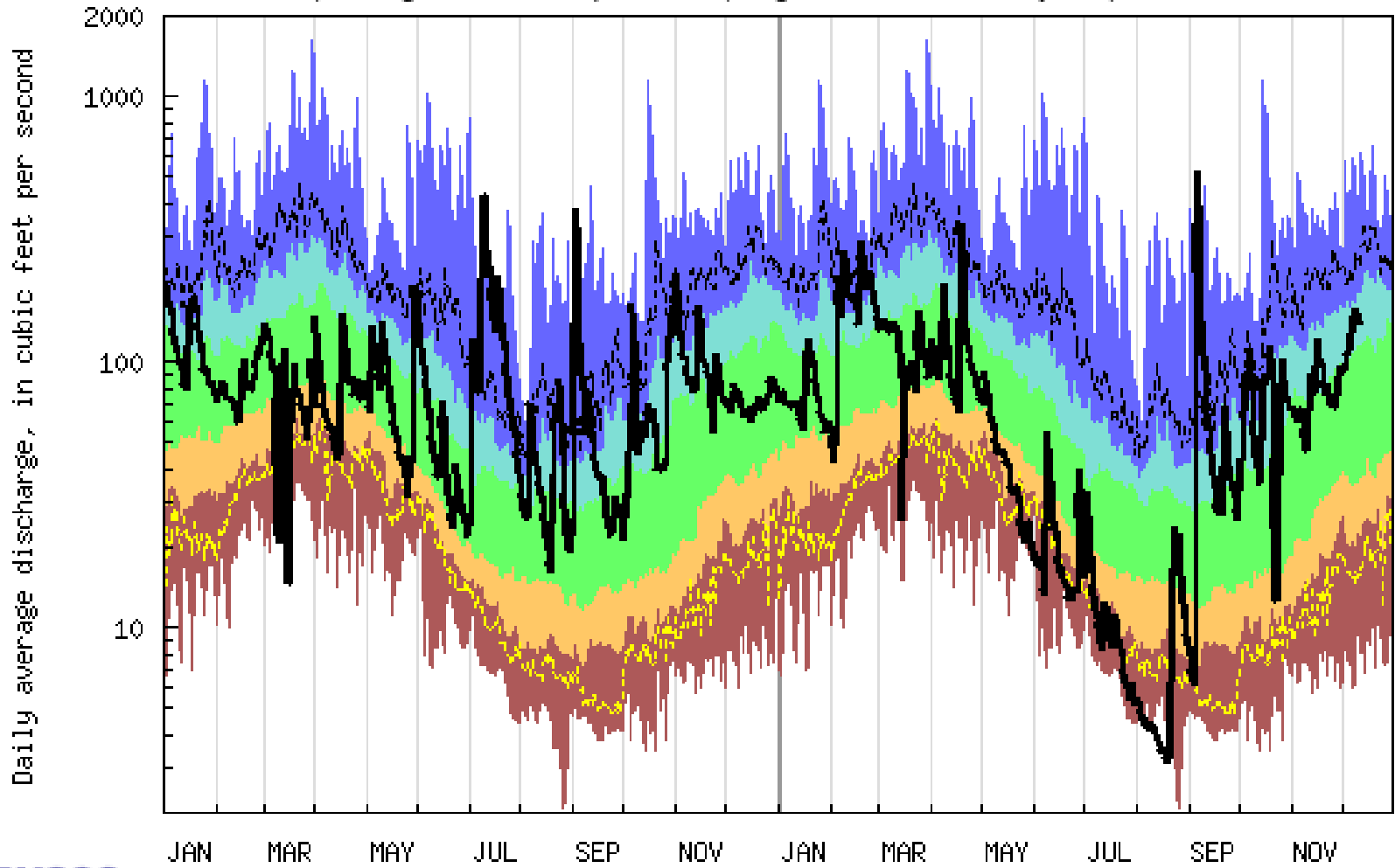
2022

Last updated: 2022-12-12

Explanation - Percentile classes

lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile-highest	Flow
Much below Normal		Below normal	Normal	Above normal	Much above normal		

USGS 01114500 WOONASQUATUCKET RIVER AT CENTERDALE, RI  
 (Drainage area: 38.3 square miles, length of record: 80 - 81 years)







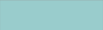


USGS WaterWatch

2021

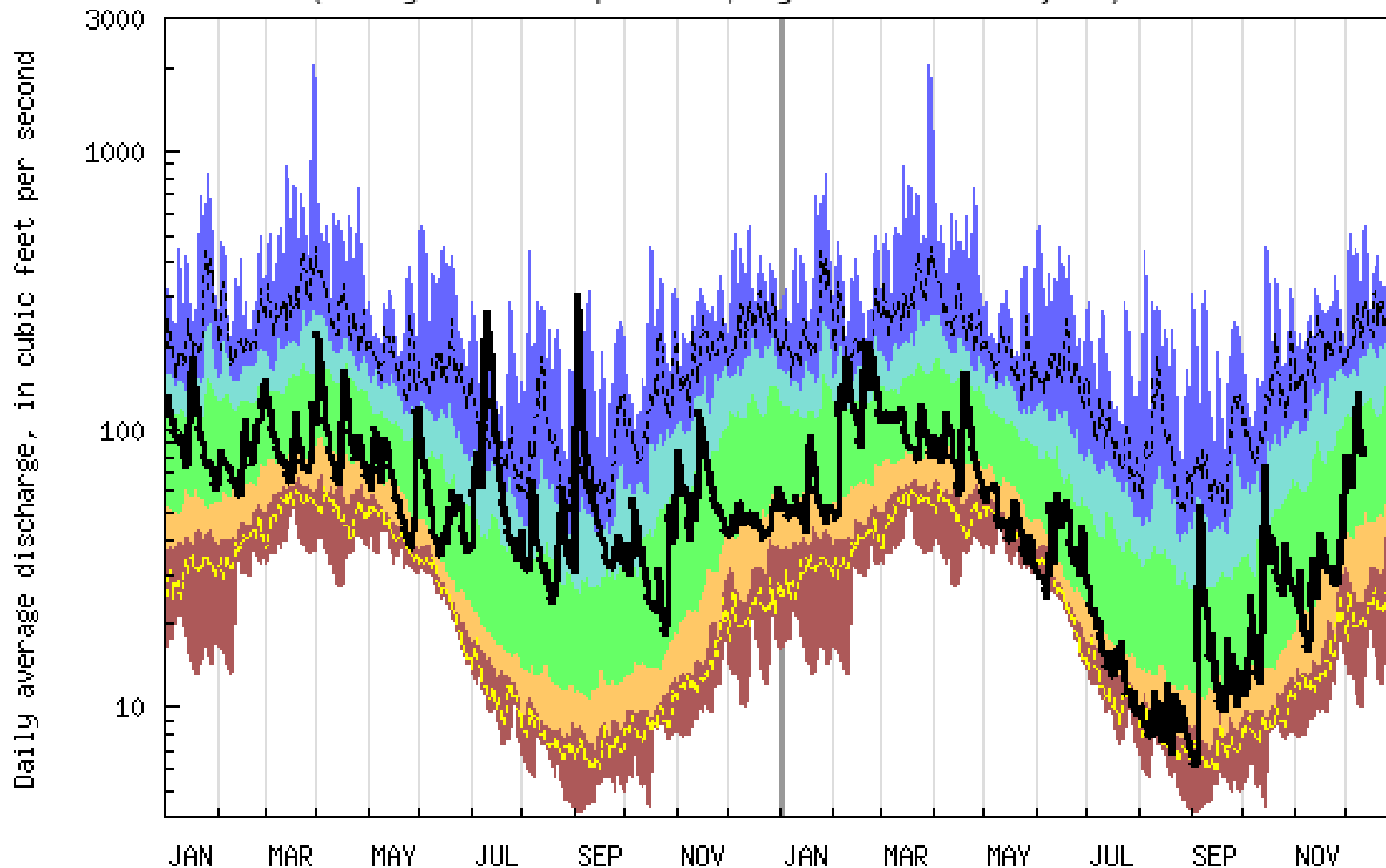
2022

Last updated: 2022-12-12

Explanation - Percentile classes

							
lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile-highest	Flow
Much below Normal		Below normal	Normal	Above normal	Much above normal		

USGS 01117800 WOOD RIVER NEAR ARCADIA, RI  
 (Drainage area: 35.2 square miles, length of record: 57 - 58 years)








**USGS WaterWatch**

2021

2022

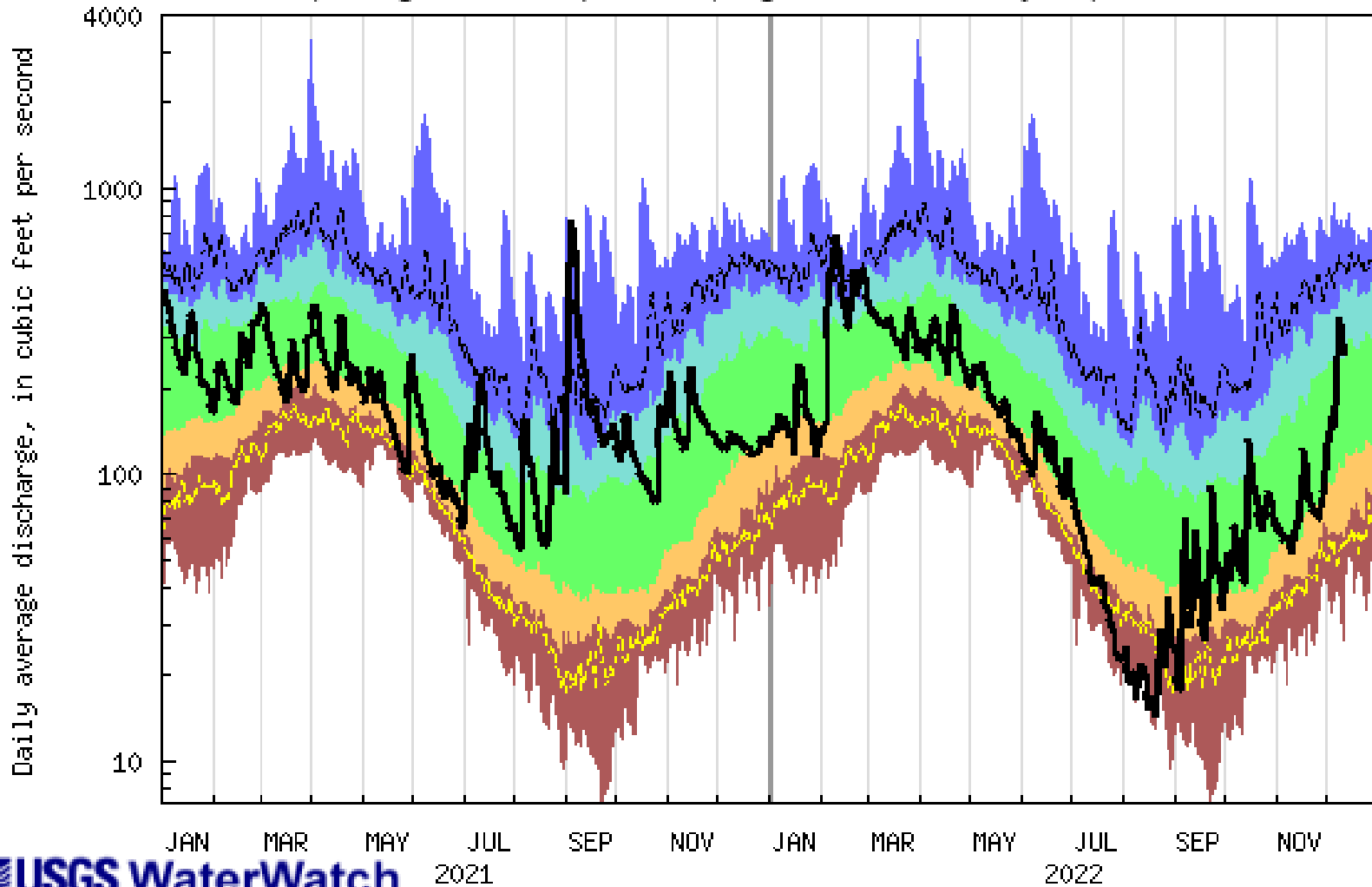
Last updated: 2022-12-12

Explanation - Percentile classes

							
lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile -highest	Flow
Much below Normal	Below normal	Normal	Above normal	Much above normal			

USGS 01117500 PAWCATUCK RIVER AT WOOD RIVER JUNCTION, RI

(Drainage area: 100 square miles, length of record: 81 - 82 years)

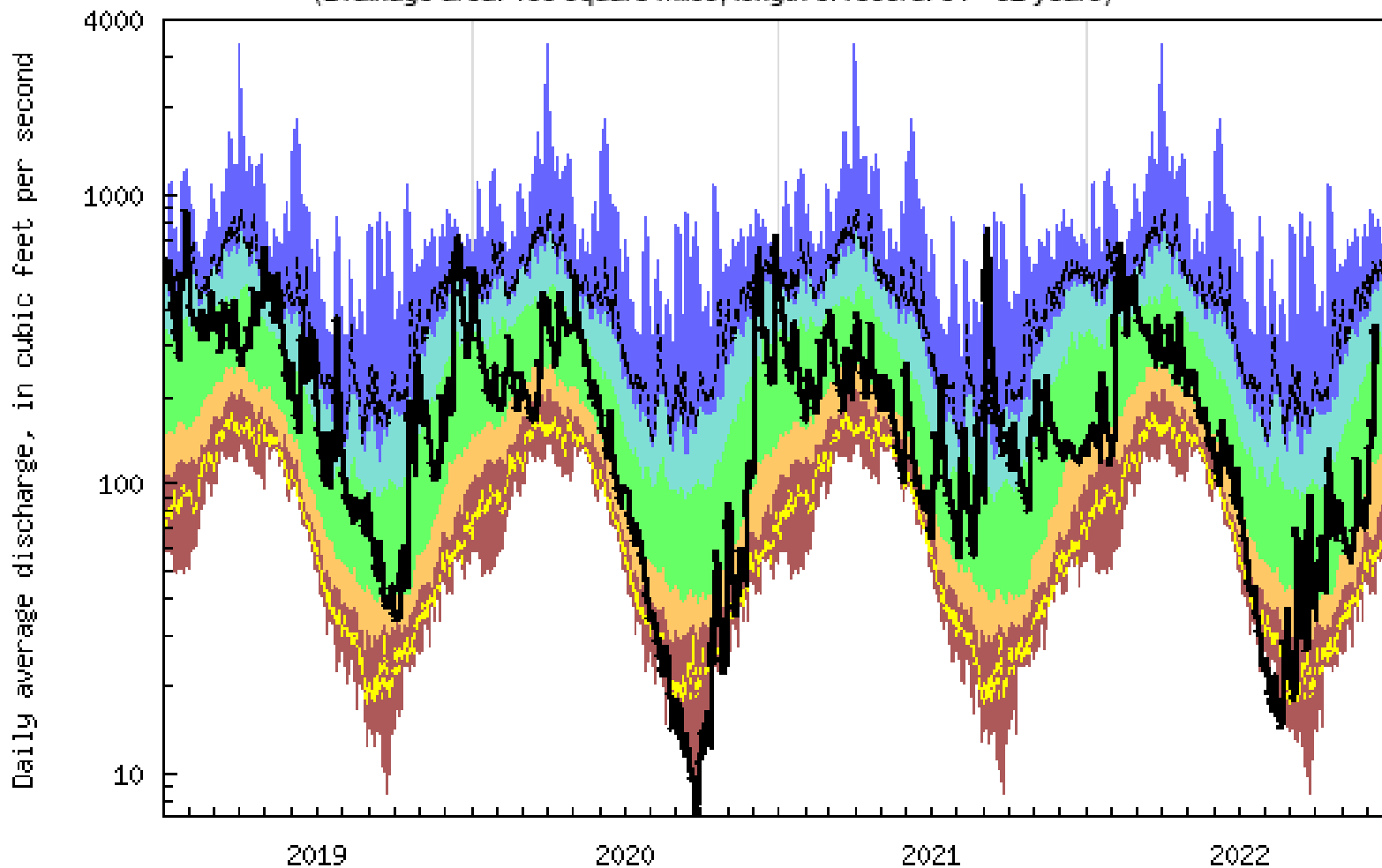


USGS WaterWatch

Last updated: 2022-12-12

Explanation - Percentile classes						
lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile-highest
Much below Normal		Below normal	Normal	Above normal		Much above normal
						Flow

USGS 01117500 PAWCATUCK RIVER AT WOOD RIVER JUNCTION, RI  
 (Drainage area: 100 square miles, length of record: 81 - 82 years)



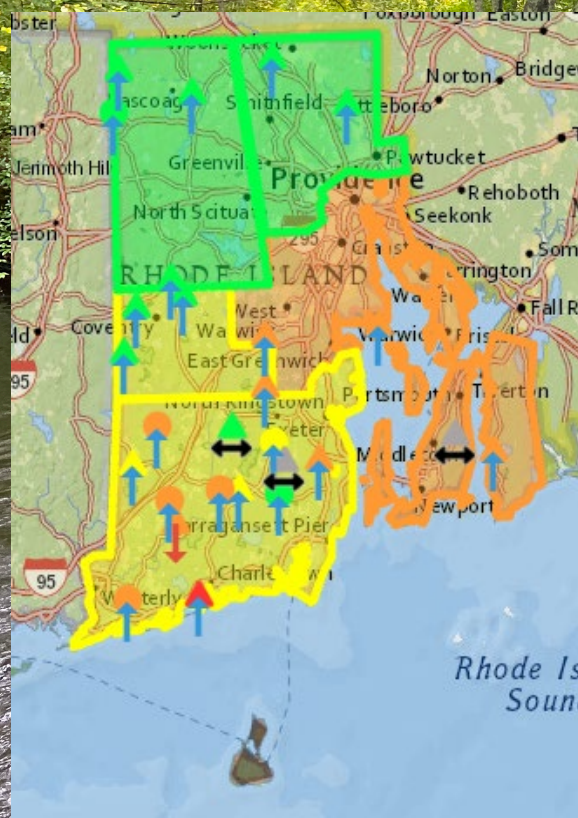
**USGS WaterWatch**

Last updated: 2022-12-12

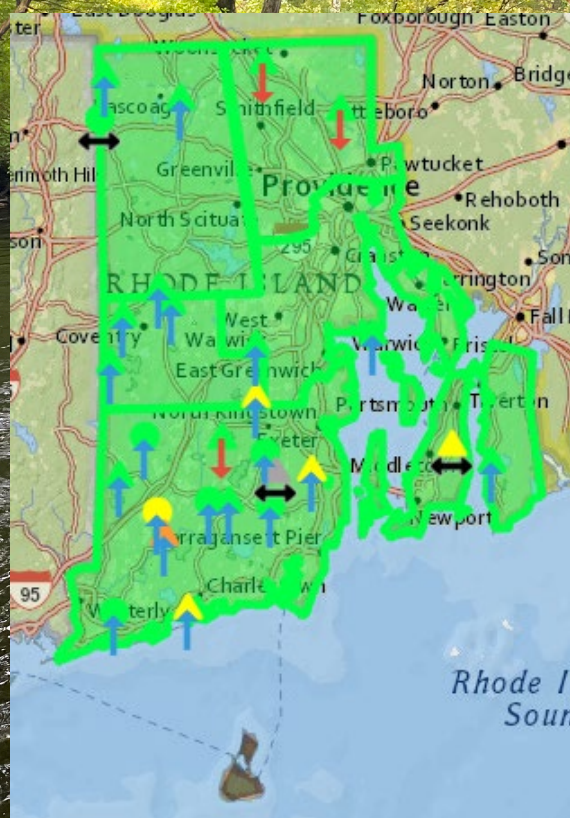
Explanation - Percentile classes						
lowest-10th percentile	5	10-24	25-75	76-90	95	90th percentile -highest
Much below Normal		Below normal	Normal	Above normal	Much above normal	
Flow						

# Groundwater Conditions

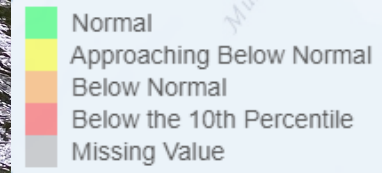
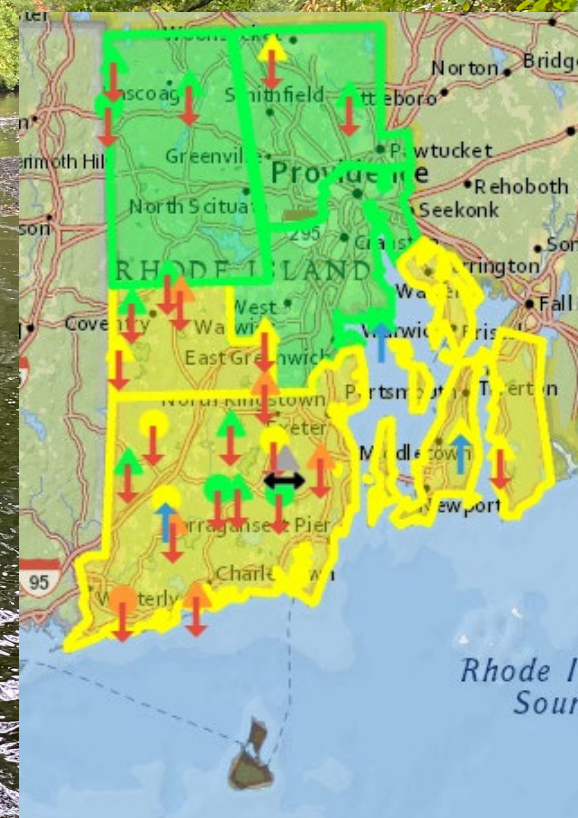
End of September 2022



End of October 2022



End of November 2022



# Average Groundwater Conditions

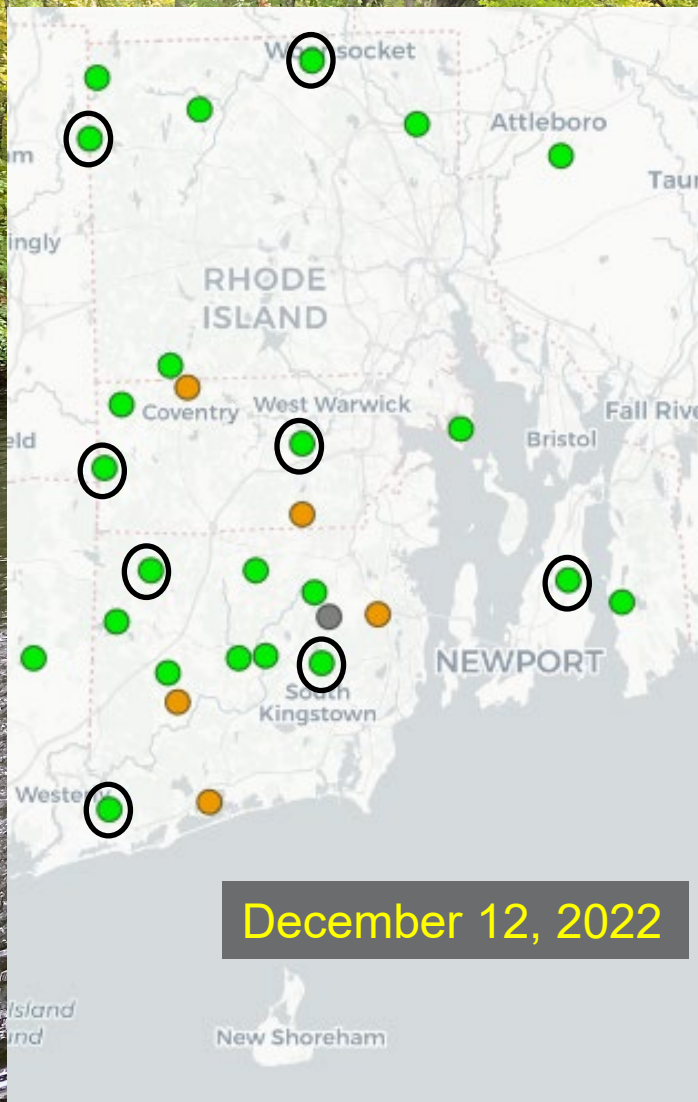
Regions	GW 3/2022	GW 4/2022	GW 5/2022	GW 6/2022	GW 7/2022	GW 8/2022	GW 9/2022	GW 10/2022	GW 11/2022
Northwest	52	43	19	31	22	13	60	64	53
Northeast	31	52	12	16	24	19	81	75	52
Central West	35	31	10	27	14	7	35	54	26
Central East	41	32	14	20	20	9	19	52	41
Eastern	33	37	17	15	17	9	11	39	32
Southern	55	44	33	30	26	17	30	42	38
New Shoreham	No Wells-----								
	3/2022	4/2022	5/2022	6/2022	7/2022	8/2022	9/2022	10/2022	11/2022
<b>statewide GW</b>	47	41	24	27	22	14	38	50	38

**Groundwater = Normal (1 Month of Normal or Below Normal)**





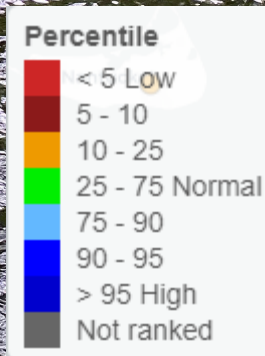
# Current Groundwater Conditions



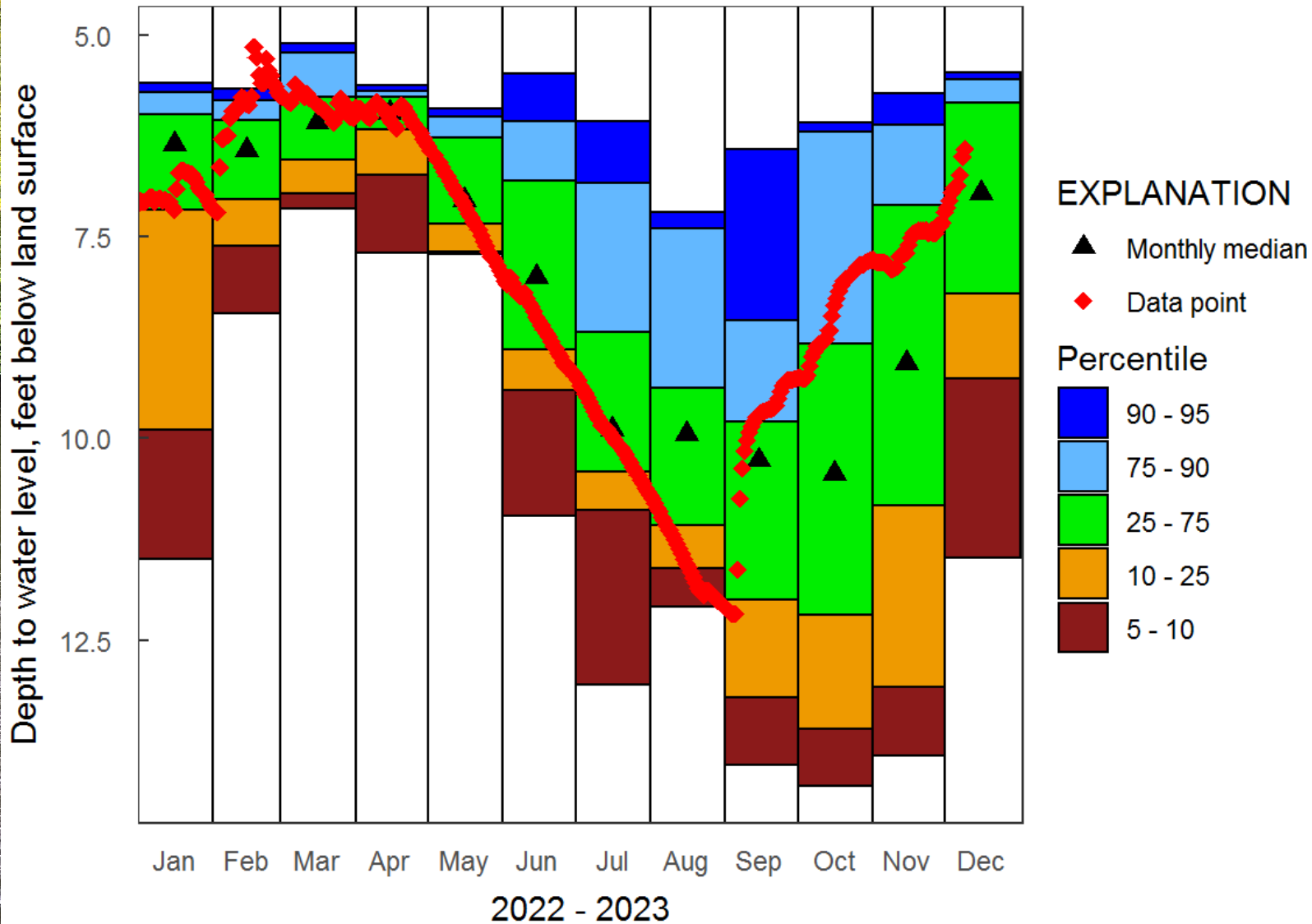
Percentile	
Red	< 5 Low
Dark Red	5 - 10
Orange	10 - 25
Green	25 - 75 Normal
Light Blue	75 - 90
Blue	90 - 95
Dark Blue	> 95 High
Grey	Not ranked



# Current Groundwater Conditions

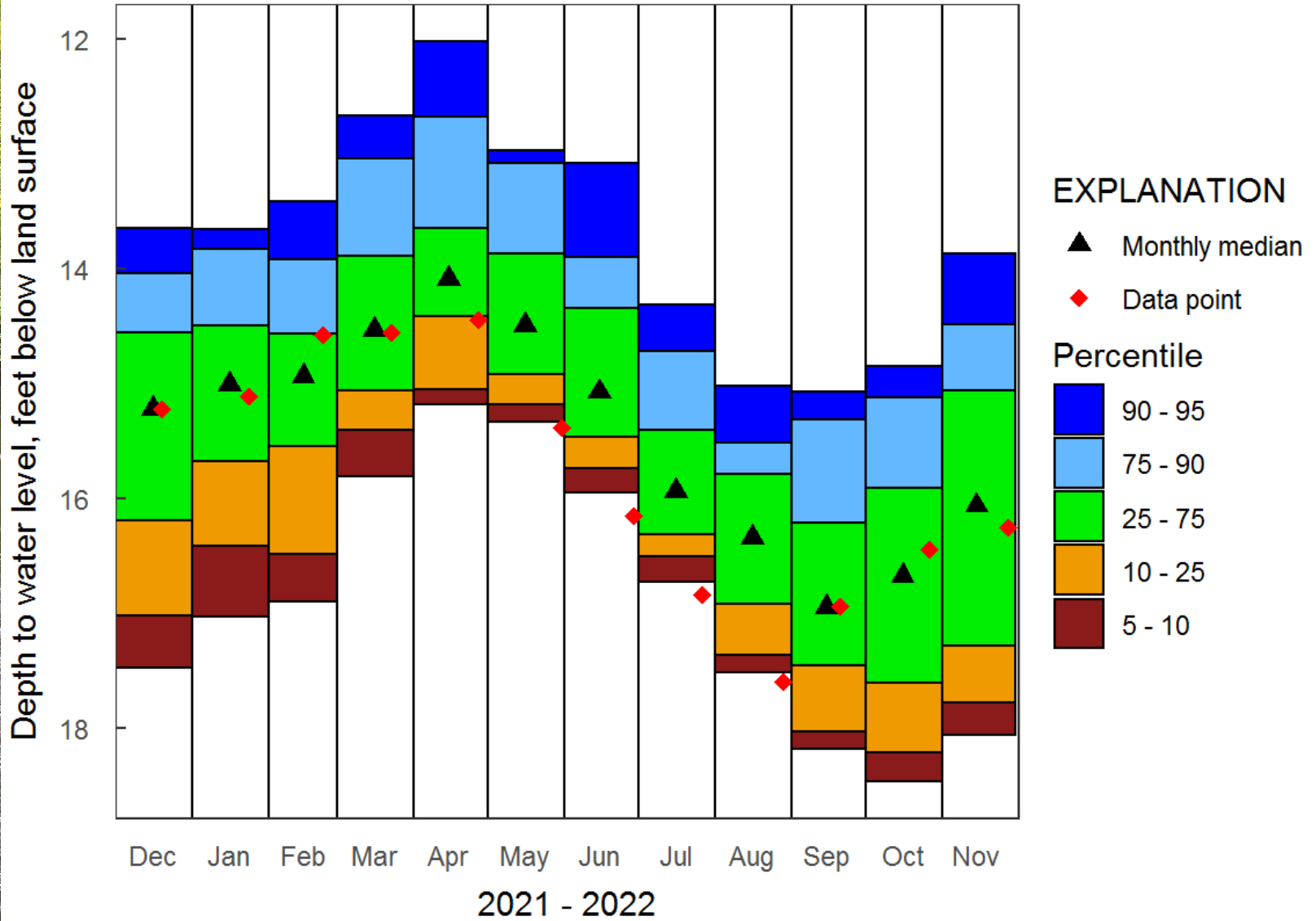


U.S. Geological Survey



Plot created: 2022-12-12

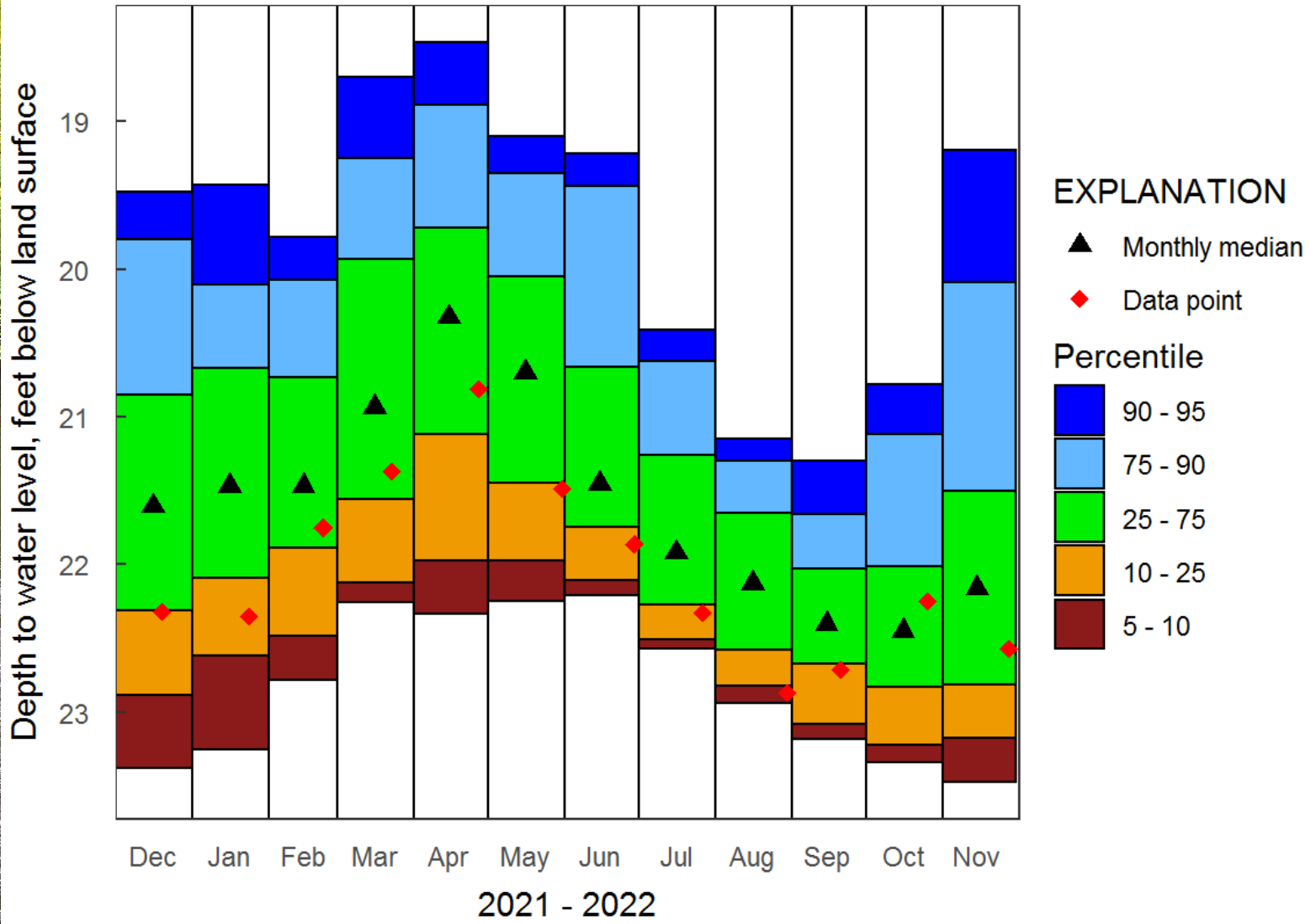
U.S. Geological Survey



Plot created: 2022-12-06

414022071332801 RI-COW 411

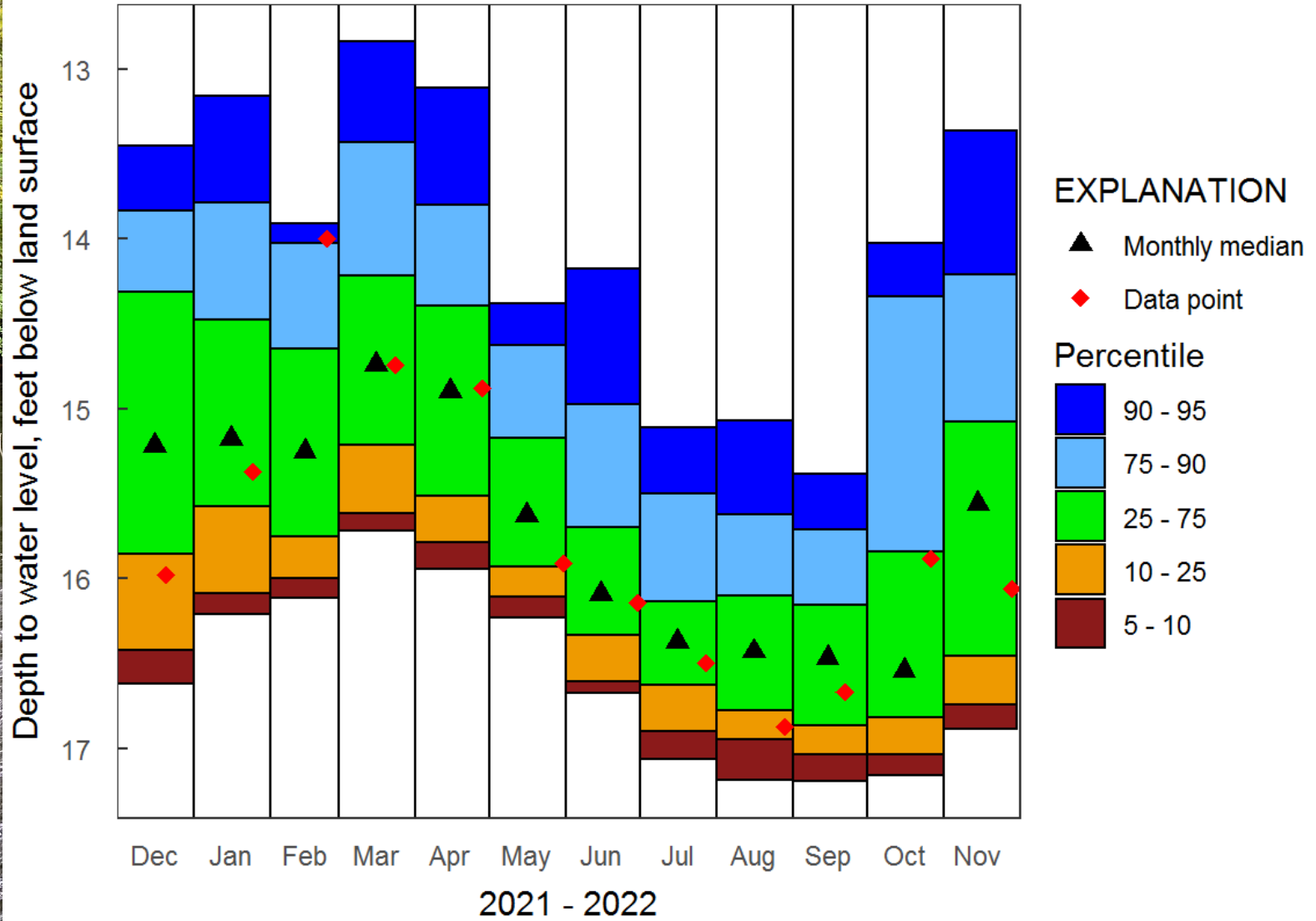
U.S. Geological Survey



Plot created: 2022-12-06

413907071465001 RI-WGW 181

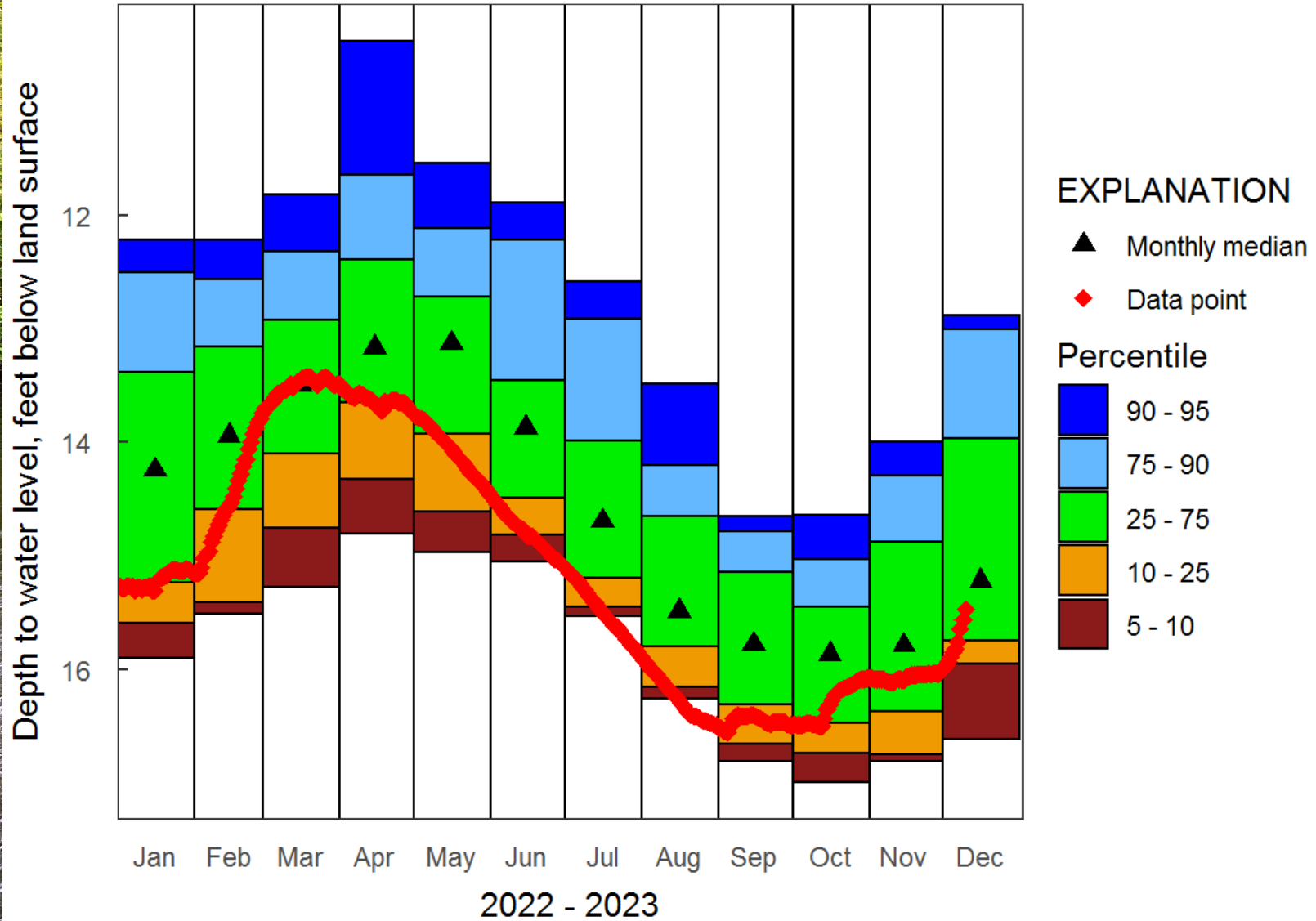
U.S. Geological Survey



Plot created: 2022-12-06

413358071433801 RI-EXW 475 EXETER, RI

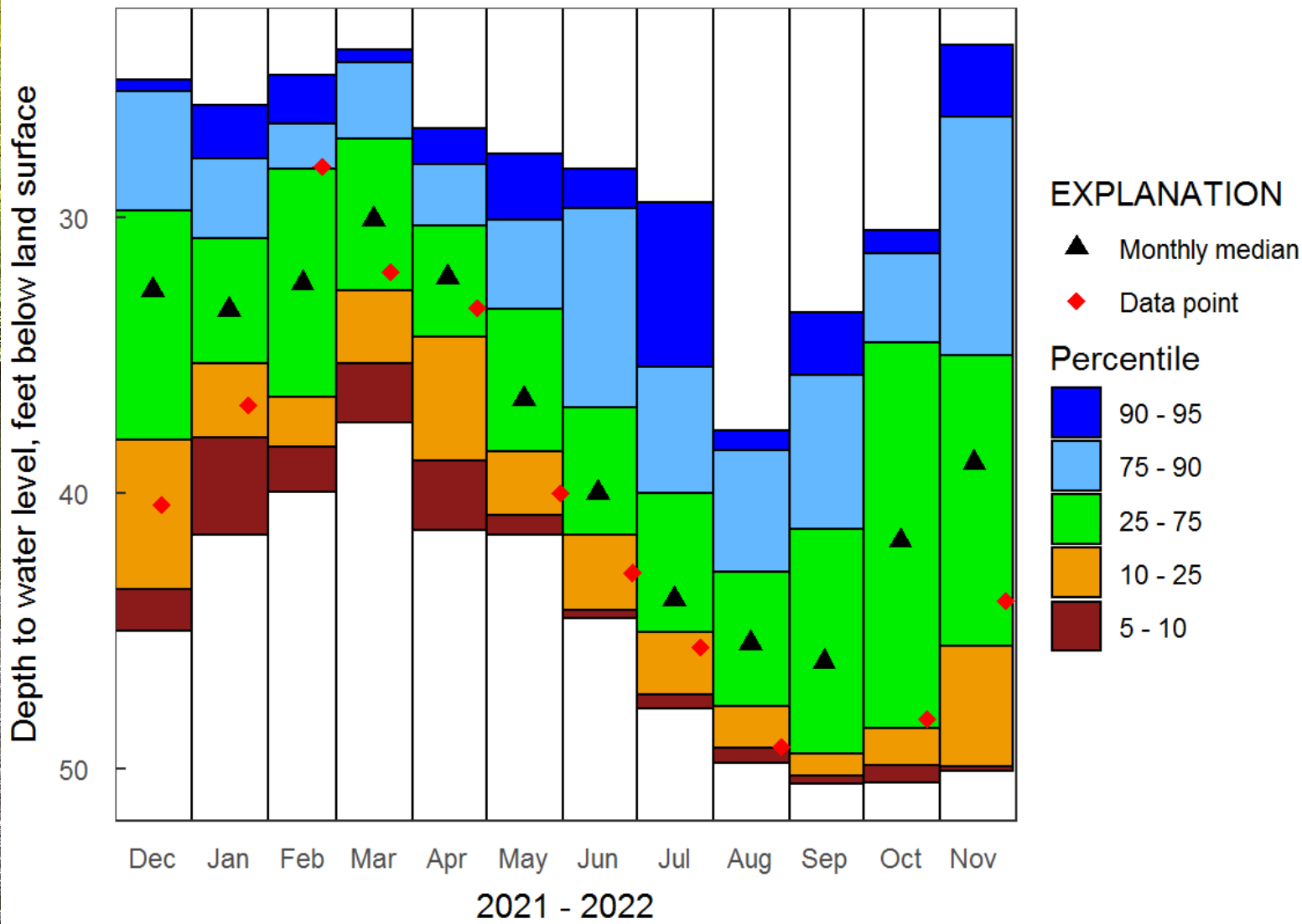
U.S. Geological Survey



Plot created: 2022-12-12

413325071152401 RI-POW 551

U.S. Geological Survey

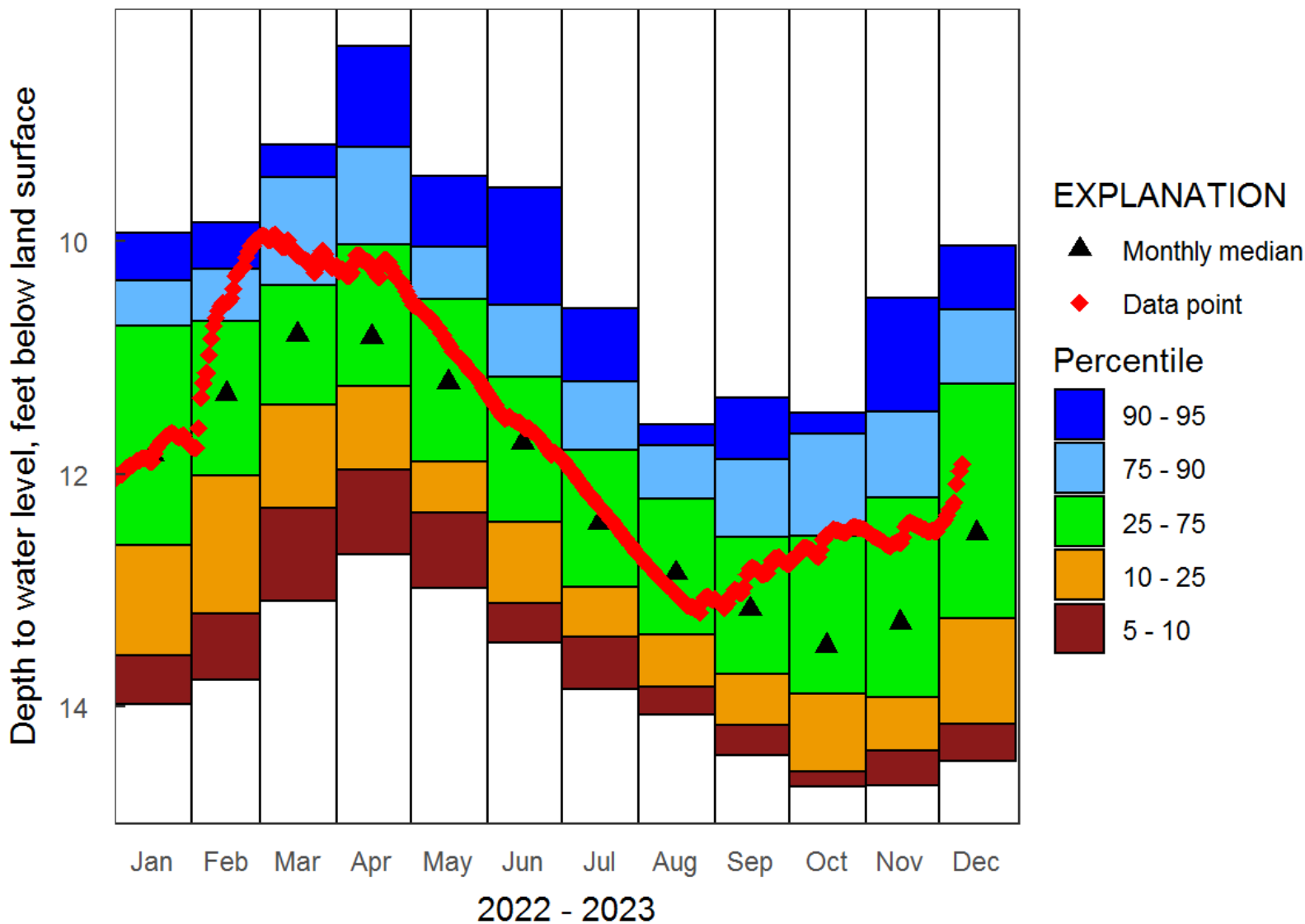


Plot created: 2022-12-06



412918071321001 RI-SNW 6 SOUTH KINGSTOWN, RI

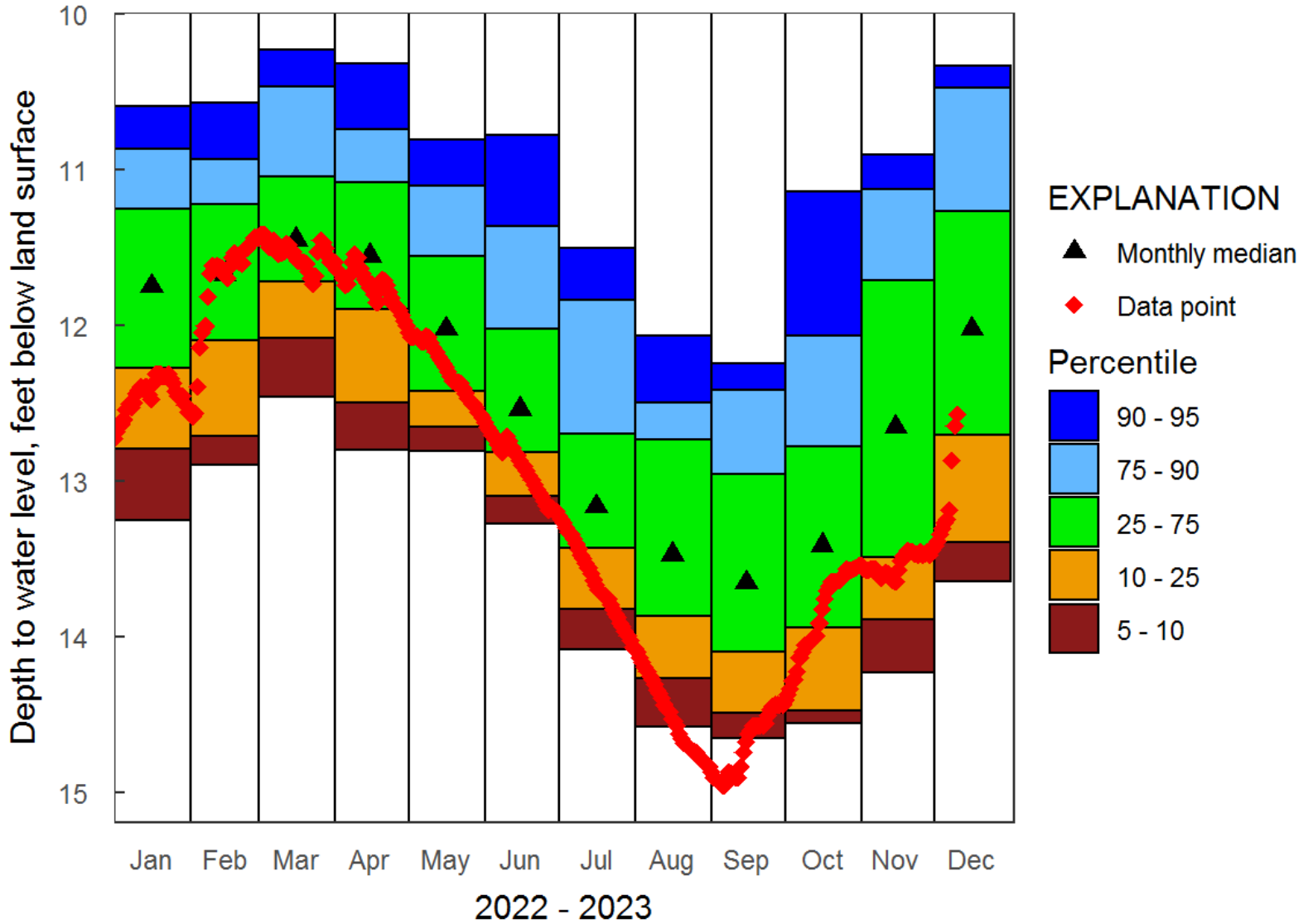
U.S. Geological Survey



Plot created: 2022-12-12

412154071462901 RI-WEW 522 WESTERLY, RI

U.S. Geological Survey



Plot created: 2022-12-12

Table 2, Rhode Island Drought Indices and Phases

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# Statewide Summary: Streamflow - Recap

- Based on the State Guide Plan 721
  - Conditions are Normal
    - September 48%
    - October 58%
    - November 41%
  - Streamflow statewide has been at normal beginning in September
    - Southern drought region is approaching below normal
      - 36%

# Statewide Summary: Groundwater - Recap

- Based on the State Guide Plan 721 there
  - Drought advisory calls for only 2 of past 3 months of below normal groundwater levels
    - September 38%
    - October 50%
    - November 38%
  - Statewide conditions have returned to normal beginning in September
    - Southern and Eastern drought regions are on the cusp of returning to below-normal levels.



Questions?